REMARKS

Claims 1-26 are now pending in the application. Claims 10, 12 and 19-26 are withdrawn from consideration. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

CLAIM OBJECTIONS

Claims 3-7 and 14-18 are objected to by the Examiner for containing informalities. The claims have been amended to eliminate the informalities according to the suggestions of the Examiner and, therefore, the objections should now be rendered moot.

REJECTION UNDER 35 U.S.C. § 102

Claim 1 stands rejected under 35 U.S.C. § 102(e) as being anticipated by Wen et al (U.S. Pat. No. 6,064,410). This rejection is respectfully traversed.

Claim 1 has been amended and rewritten. Specifically, claim 1 has been amended to further define the head for describing display patterns on the electronic paper as having a portion that has a curved shape with a plurality of electrodes for forming electric fields being applied to the electronic paper.

The Examiner alleges that Wen et al teaches a head 40 for describing display patterns, having a curved shape, a plurality of pixel electrodes 80 being deployed in a matrix arrangement (Fig. 2), and a common electrode 90. Applicant asserts that the Examiner is incorrect in making this allegation. Wen et al, in Fig. 1, shows a print head 40 with electrodes 80 and 90. The print head 40 does not have a curved shape.

Therefore, Wen et al fails to disclose the claimed feature of a head for describing display patterns on the electronic paper, wherein a portion of the head has a curved shape having a plurality of electrodes forming electric fields being applied to the electronic paper.

Claims 8 and 9 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Vincent (U.S. Pat. No. 5,866,284). This rejection is respectfully traversed.

Claim 8 has been amended and rewritten. Specifically, claim 8 has been amended to further define the head for describing display patterns on electronic paper as a drum-shaped head wherein, the drum-shaped head has, on an outer circumferential surface of the head, a plurality of pixel electrodes forming electric fields applied to the electronic paper.

Vincent is completely silent with respect to an outer circumferential surface of the drum-shaped head containing a plurality of pixel electrodes. Rather, Vincent teaches a photoconductor that gains charge by a corona charger is used in conjunction with a back electrode roller that simply acts as a support structure to hold the medium proximate to the photoconductor.

Claim 9 is dependent upon claim 8 and should be in condition for allowance for at least the same reasons.

Therefore, reconsideration and withdrawal of this rejection is respectfully requested.

REJECTION UNDER 35 U.S.C. § 103

Claims 2-5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wen et al (U.S. Pat. No. 6,064,410) in view of Vincent (U.S. Pat. No. 5,866,284). This rejection is respectfully traversed.

The Examiner alleges that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Wen to have the pair of drums as taught by Vincent, in order to reduce risk of damage to the sheet by providing drums which can roll with the conveyance of the sheet. Applicant, however, asserts that it would not have looked to the teachings of Vincent, because Vincent teaches away from the use of electrode arrays. Vincent states:

> "Although electrode arrays provide the advantage of a potentially compact printer, they are impractical from both a cost and print speed standpoint. Each electrode must have its own high voltage driver to produce voltage swings of 500-600 volts across the relatively low dielectric re-writable paper thickness to rotate the dielectric spheres. Such drivers and their interconnects across an array of electrodes makes electrode arrays costly. The print speed achievable through electrode arrays is also significantly limited because of the short nip time the paper experiences within the writing field. The color rotation speed of dichroic spheres under practical field intensities is in the range of 20 msec or more. At this rate, a 300 dpi resolution printer employing an electrode array would be limited to under one page per minute print speed.
>
> Thus, it can be seen that electrode array printing techniques impose resolution, cost and speed limits upon re-writable media printing devices, and hinder the use of these devices in many applications." (Column 2, lines 13-32)

Furthermore, in addition to teaching away from the use of electrodes, Vincent teaches a photoconductor that gains charge by a corona charger is used in conjunction with a back electrode roller that simply acts as a support structure to hold the medium proximate to the photoconductor. Therefore, Vincent merely

discloses a photoconductor, which is not an electrode, and a back electrode, which is a common electrode. There is no mention of a plurality of pixel electrodes forming electric fields applied to said electronic paper as is claimed in the present invention.

The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination. Vincent teaches away from the use of electrodes which is claimed by the present invention and, therefore, provides no desirability in making the proposed combination with Wen et al.

Claims 6 and 7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wen et al in view of Vincent as applied to claims 2-5 above, and further in view of Haas et al (U.S. Pat. No. 6,100,909). This rejection is respectfully traversed.

Claims 6 and 7 are dependent upon claims that depend from claim 1. As stated above, Vincent teaches away from the use of electrodes. Therefore, it would not have been obvious to utilize the switching elements of Haas in combination with the teachings of Wen and Vincent.

Claims 11 and 13-16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wen et al in view of Vincent. This rejection is respectfully traversed.

Claim 11 has been amended and rewritten. Specifically, claim 11 has been amended to further define the head for describing display patterns on electronic paper as a describing head having, on an outer circumferential surface of the describing head, a plurality of pixel electrodes forming electric fields applied to the electronic paper.

As was stated above, the references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination. Vincent

teaches away from the use of electrodes which is claimed by the present invention and, therefore, provides no desirability in making the proposed combination with Wen et al.

Claims 17 and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wen et al in view of Vincent as applied to claims 11 and 13-16 above, and further in view of Haas et al. This rejection is respectfully traversed.

Claims 17 and 18 are dependent from claims that are dependent upon claim 11. As stated above, Vincent teaches away from the use of electrodes. Therefore, it would not have been obvious to utilize the switching elements of Haas in combination with the teachings of Wen and Vincent.

Therefore, reconsideration and withdrawal of this rejection is respectfully requested.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this

application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: Nov 26, 2001

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ATTACHMENT FOR CLAIM AMENDMENTS

The following is a marked up version of each amended claim in which underlines indicates insertions and brackets indicate deletions.

1. (Amended) An electronic paper printer for describing display patterns on electronic paper, comprising:

a plurality of capsules inside of which charged particles move, whereby colors are changed and display patterns are displayed; and

a head for describing display patterns on said electronic paper, a portion of said head has a curved shape with a plurality of electrodes;

said plurality of electrodes form electric fields, said electric fields being applied to said electronic paper; wherein:

said charged particles inside said capsules are caused to move by applying [an] the electric field to said electronic paper; and

said portion of said head [which] contacts said electronic paper [is given a curved shape].

3. (Amended) The electronic paper printer according to claim 2, wherein at least one drum of said pair of drums has, on an outer circumferential surface thereof, [a] the plurality of pixel electrodes that form electric fields that are applied to said electronic paper.

4. (Amended) The electronic paper printer according to claim 2, wherein one drum of said pair of drums has, on an outer circumferential surface thereof, [a] the plurality of pixel electrodes that form electric fields that are applied to said electronic paper, and another [other] drum thereof has, on outer circumferential surface thereof, a common electrode that forms said electric fields together with said pixel electrodes.

8. (Amended) An electronic paper printer for describing display patterns on electronic paper, comprising:

a plurality of capsules inside of which charged particles move, whereby colors are changed and display patterns are displayed; and

a drum-shaped head for describing display patterns on said electronic paper, wherein:

said drum-shaped head having, on an outer circumferential surface of said head, a plurality of pixel electrodes forming electric fields applied to said electronic paper;

said charged particles inside said capsules are caused to move by applying [an] said electric field to said electronic paper; and

configuration is such that said display patterns are described by patterns applied from said head to said electronic paper.

11. (Amended) An electronic paper printer for describing display patterns on electronic paper, comprising:

a plurality of capsules inside of which charged particles move, whereby colors are changed and display patterns are displayed;

a describing head for describing display patterns on said electronic paper, said describing head having, on an outer circumferential surface of said describing head, a plurality of pixel electrodes forming electric fields applied to said electronic paper; and

an erasing head for erasing display patterns described on said electronic paper; wherein:

portion or portions of said describing head and / or said erasing head that contact said electronic paper are given a curved shape.

14. (Amended) The electronic paper printer according to claim 13, wherein at least one drum of said pair of drums has, on an outer circumferential surface thereof, [a] said plurality of pixel electrodes [that form electric fields that are applied to said electronic paper].

15. (Amended) The electronic paper printer according to claim 13, wherein one drum of said pair of drums has, on an outer circumferential surface thereof, [a] said plurality of pixel electrodes [that form electric fields that are applied to said electronic paper], and another [other] drum thereof has, on an outer circumferential surface thereof, a common electrode that forms said electric fields together with said pixel electrodes.